

CLAIMS

What is claimed is:

1. A system for controlling packet classification behavior of a plurality of heterogeneous network processors in a network, the network also including at least one host processor utilizing at least one packet classification application, the system comprising:

a plurality of generic application program interfaces (APIs) communicating with the at least one packet classification application and the plurality of heterogeneous network processors, the plurality of generic APIs for communicating with the at least one packet classification application in the at least one host processor in a network processor independent manner, the plurality of generic APIs managing the packet classification behavior of the plurality of heterogeneous network processors in a network processor specific manner;

wherein the plurality of generic APIs allow the at least one packet classification application to be network processor independent and to manage the packet classification behavior of the plurality of heterogeneous network processors in the network processor specific manner.

2. The system of claim 1 wherein the plurality of generic APIs further return a null behavior for a portion of the plurality of heterogeneous network processors in which a particular function of a particular API is not supported.

3. The system of claim 1 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a define API for allowing a rule of the plurality of rules to be defined.

5 4. The system of claim 3 wherein the define API allows a priority, a rule number, a rule type, at least one corresponding field and at least one corresponding patterns to be defined.

10 5. The system of claim 1 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a purge API to allow a portion of the plurality of rules for a network processor of the plurality of heterogeneous network processors to be deleted.

15 6. The system of claim 1 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a delete API for allowing a rule of the plurality of rules to be deleted.

20 7. The system of claim 1 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a list API for allowing a portion of the plurality of rules to be listed.

8. The system of claim 1 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a swap API for allowing a first priority of a first rule to be swapped with a second priority of a second rule.

5 9. A computer-readable medium including a program for controlling packet classification behavior of a plurality of heterogeneous network processors in a network, the network also including at least one host processor utilizing at least one packet classification application, the program comprising instructions for:

implementing a plurality of generic application program interfaces (APIs)
10 communicating with the at least one packet classification application and the plurality of heterogeneous network processors, the plurality of generic APIs for communicating with the at least one packet classification application in the at least one host processor in a network processor independent manner, the plurality of generic APIs managing the packet
classification behavior of the plurality of heterogeneous network processors in a network
15 processor specific manner;

wherein the plurality of generic APIs allow the at least one packet classification application to be network processor independent and to manage the packet classification behavior of the plurality of heterogeneous network processors in the network processor specific manner.

20 10. The computer-readable medium of claim 9 wherein the plurality of generic APIs further return a null behavior for a portion of the plurality of heterogeneous network processors in which a particular function of a particular API is not supported.

11. The computer-readable medium of claim 9 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a define API for allowing a rule of the plurality of rules to be defined.

5 12. The computer-readable medium of claim 11 wherein the define API allows a priority, a rule number, a rule type, at least one corresponding field and at least one corresponding patterns to be defined.

10 13. The computer-readable medium of claim 9 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a purge API to allow a portion of the plurality of rules for a network processor of the plurality of heterogeneous network processors to be deleted.

15 14. The computer-readable medium of claim 9 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a delete API for allowing a rule of the plurality of rules to be deleted.

20 15. The computer-readable medium of claim 9 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a list API for allowing a portion of the plurality of rules to be listed.

16. The computer-readable medium of claim 9 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a

swap API for allowing a first priority of a first rule to be swapped with a second priority of a second rule.

17. A method for controlling packet classification behavior of a plurality of heterogeneous network processors in a network, the network also including at least one host processor utilizing at least one packet classification application, the method comprising:

(a) abstracting the packet classification behavior of each of the plurality of heterogeneous network processors;

(b) providing a plurality of generic application program interfaces (APIs) based on the abstraction, the plurality of generic APIs communicating with the at least one packet classification application and the plurality of heterogeneous network processors, the plurality of generic APIs for communicating with the at least one packet classification application in the at least one host processor in a network processor independent manner, the plurality of generic APIs managing the packet classification behavior of the plurality of heterogeneous network processors in a network processor specific manner;

wherein the plurality of generic APIs allow the at least one packet classification application to be network processor independent and to manage the packet classification behavior of the plurality of heterogeneous network processors in the network processor specific manner.

18. The method of claim 17 wherein the plurality of generic APIs further return a null behavior for a portion of the plurality of heterogeneous network processors in which a particular function of a particular API is not supported.

19. The method of claim 17 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a define API for allowing a rule of the plurality of rules to be defined.

5 20. The method of claim 20 wherein the define API allows a priority, a rule number, a rule type, at least one corresponding field and at least one corresponding patterns to be defined.

10 21. The method of claim 17 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a purge API to allow a portion of the plurality of rules for a network processor of the plurality of heterogeneous network processors to be deleted.

15 22. The method of claim 17 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a delete API for allowing a rule of the plurality of rules to be deleted.

20 23. The method of claim 17 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a list API for allowing a portion of the plurality of rules to be listed.

24. The method of claim 17 wherein a plurality of rules are used in the packet classification behavior and wherein the plurality of generic APIs include a swap API for allowing a first priority of a first rule to be swapped with a second priority of a second rule.